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May 24, 1996

Dr. Peter Culver, P.E.  
U.S. Environmental Protection Agency  
Region VII, Superfund Branch  
726 Minnesota Avenue  
Kansas City, Kansas 66101

asp

Site:	MOUND ST. PCB
ID #:	MO0000093682
Break:	1.5
Other:	5-24-96

Project: ARCS Region VI, VII, & VIII Contract No. 68-W9-0032  
Subject: Draft Screening Site Inspection Report for the Mound Street PCB Site in St. Louis, Missouri (CERCLIS ID No. MO0000093682)

Dear Dr. Culver:

Sverdrup Corporation (Sverdrup) was tasked by the United States Environmental Protection Agency Region VII (USEPA), under Work Assignment No. 037-7JZZ, to perform a Screening Site Inspection (SSI) of the Mound Street PCB Site in St. Louis, Missouri under ARCS Contract No. 68-W9-0032.

The objectives of the Mound Street PCB SSI were to investigate the threat to human health and the surrounding environment associated with this site, and in particular, the potential for polychlorinated biphenyl (PCB) contamination. These objectives were evaluated by the verification of benzene and polynuclear aromatic hydrocarbon (PAH) contamination in the shallow alluvial aquifer, verification of soil PAH concentrations, identification of PCB levels below detection limits, and the associated potential impact of contaminants to human health and the environment. The surface water pathway is the primary pathway of concern for the site. The groundwater and soil exposure pathways are of concern in that they contribute to the surface water pathway.

The recommendation for future action at this site is based on new information collected for the site, as well as existing background data reviewed by Sverdrup. The EPA and the state of Missouri files have been reviewed and the information reassessed using current analytical data and target considerations.

### Site Location and Description

The Mound Street PCB Site is located in the City of St. Louis at the eastern end of Mound Street (near the intersection of Mound Street and First Street) (Figure 1). The site is on the western side of the concrete flood wall constructed along the Mississippi River by the U.S. Army Corps of Engineers and is encompassed by Mound Street, the gravel roadway, and the Petroleum, Fuel and Terminal-Apex Oil Facility (PFT-Apex Oil) (Figure 2). The Mound Street PCB Site is located in an industrial area.

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SUPERFUND RECORDS

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The total area of the Mound Street PCB Site is estimated at approximately 1.5 acres. The buildings on the site were demolished in 1991, and the property currently has no structures upon it. The property is owned by McKinley Iron, Inc. located at 3620 North Hall Street, St. Louis, Missouri. Mr. Herman Gellman, representative of McKinley Iron, was present during a portion of the SSI site reconnaissance activities conducted at the site on December 6, 1995. Mr Gellman was interviewed during the site reconnaissance. He did not know if the basement walls and floor were removed during building demolition; however, he did state that the basement area was probably filled with demolition debris. He was not aware of any unusual observations made, such as stained soil or odors, during the building demolition. He estimated the basement depth to be between 12 and 14 feet.

The site is roughly rectangular in shape and is bordered on three sides by industrial property (Figure 2). Gravel roads are located along the property perimeter, with Mound Street being the northern boundary. An east-west dirt path has been made across the property. No fencing or other barrier exists around the property. Bricks, rock, wood, metal, brush, and concrete debris are located on the southern portion of the property. Several small soil piles were observed along the southeastern edge of the property. The northern portion is overgrown with grass and weeds and other vegetation. The general surface runoff is toward the east and south. To the east is vacant property with railroad tracks, the concrete flood wall, and then the Mississippi River. An abandoned pump house, once part of the Mound Street Power Plant, is located on the east side of the flood wall. According to Mr. Gellman, the property occupied by the abandoned pump house was deeded to the City of St. Louis for the construction of a bike path along the river.

### **Site History and Past Investigations**

The site is part of the Laclede Gas and Light Company former manufactured gas plant (FMGP), which operated in the late 1800s to the mid-1940s (Figure 3). Laclede Gas used a retort process for coal carbonization in the generation of gas. Approximately 930 million gallons of coal tar waste were produced at this facility. It is estimated that approximately 76 percent of the waste was sold, with the remaining 24 percent being buried on-site. This equates to approximately 224 million gallons of coal tar waste potentially buried at the site. On-site burial was typically conducted in unlined pits. In 1940, operations were split between Laclede Gas Light Company (Laclede Gas) and Laclede Power and Light Company (Laclede Electric).

In 1945, Union Electric (UE) purchased the entire coal gas facility and operated the Mound Street Power Plant from 1945 to 1973. UE did not manufacture coal gas at this site. In 1969, the Apex Oil Company purchased the former coal gas works (Laclede Gas) from UE. UE, however,

continued to operate its electrical facility from the former Laclede Electric works (Figure 4). The Apex Oil Company utilized the site as a tank farm for the storage of petroleum fuels until the mid-1980s, when it became an asphalt product terminal (Figure 4). The PFT-Apex Oil facility is currently still operating at this location. In 1973, the UE property (Laclede Electric works) was transferred to the Tenlis Company. Tenlis dismantled the power generation and transmission equipment. Transformer oil was reportedly disposed by Midwest Oil Company. The dismantled equipment was sold as scrap metal. In 1981, Tenlis transferred the property to AZCON. The operations of AZCON are unknown; however, it was reported in the MDNR PA report that AZCON could have been a metal recycling company. In 1985, Mound Street Corporation became the property owner and leased the building to an individual for an electric motor stripping operation. An oil fire occurred in the basement of the building in 1989, and the building was demolished in the spring of 1991. McKinley Iron became the owner of the property in 1993. The property does not have any buildings or other structures, and is currently vacant.

The Mound Street PCB Site has had numerous investigations conducted since 1976.

- The U.S. Coast Guard investigated oil slicks in the Mississippi River, in the vicinity of the Mound Street PCB Site, three times between 1976 to 1987. The oil slicks were reportedly originating from the Mound Street Power Plant. The basement of the Mound Street Power Plant was the suspected source of oil; however, no specific source was identified. No samples were collected during any of the Coast Guard investigations.
- The St. Louis City Division of Health conducted an investigation of the Mound Street Power Plant on April 8, 1987. Six oil samples were collected from the basement of the Mound Street building and analyzed for PCBs. No PCB contamination was identified; however, detection limits were not recorded.
- The Ecology and Environment/Field Investigation Team (E&E/FIT) submitted a PA report of the Mound Street Power Plant Site on June 23, 1988. The field activities were conducted on September 17, 1987. Six oil, water and oil/water mixture samples were collected from the Mound Street building basement and two from manholes in Mound Street during the PA site reconnaissance (Figure 5). The samples were analyzed for PCBs. No PCB contamination was detected at a 1 mg/kg detection limit in any of the samples. The source of oil in the basement of the Mound Street Power Plant building (Mound Street PCB Site) was potentially identified as the adjacent PFT-Apex Oil terminal. It was stated in the report that PFT-Apex Oil had numerous spills, some of which entered the Mound Street building basement. Transformers and hydraulic oil tanks, located in the Mound

Street building basement, were supposedly drained and removed in the 1970s; however, no records confirming the proper disposal of oil were available.

- The E&E/FIT conducted a site reconnaissance of the Laclede Gas and Light FMGP on November 20, 1990. Seepage was observed emanating from the foundation and piping system of an abandoned pump house, formerly part of the Mound Street Power Plant. The pipes were reportedly plugged with concrete; however, material was seeping through the concrete. The pump house is located on the eastern side of the flood wall, therefore, the seepage was going directly into the Mississippi River. No samples were collected and no description of the seepage material was made during the site reconnaissance.
- The E&E/FIT submitted an SSI report on the Laclede Gas and Light FMGP Site on October 29, 1991. Field activities for the SSI occurred March 3-9, 1991. Subsurface soil, surface soil, sediment, surface water and groundwater samples were collected on and around the PFT-Apex Oil property. No samples were collected from the basement of the Mound Street Power Plant Building (Mound Street PCB Site), as originally planned, since the building was being demolished at the time of the SSI field activities. Numerous samples were collected in the vicinity of the Mound Street PCB Site. Only these sample results will be discussed below. Five borehole screening locations, four surface soil sample locations, three groundwater sample locations, three surface water sample locations, and three sediment sample locations are in the vicinity of the Mound Street PCB Site (Figures 6a and 6b). Screening results indicated the presence of benzene, toluene, xylene and PAHs in the subsurface soil in the vicinity of the Mound Street PCB Site (borings B01, B02, B03, B17 and B18). Boring B23 was utilized as a background location, and the results showed nondetect for volatiles, metals, and semivolatiles. Screening values for surface water samples were nondetect for the same parameters. Screening analysis of sediment samples indicated the presence of xylene and PAHs. Surface and near-surface soil samples submitted for CLP analysis were collected from the 0 - 2 foot depth interval. Samples were analyzed for semivolatiles, total metals and cyanide. Cyanide and PAHs were detected above the background detection limits. Metal concentrations were negligible when compared to background levels. Sediment samples submitted for CLP analysis were analyzed for total petroleum hydrocarbons, volatiles, semivolatiles, cyanide and total metals. The extreme upgradient sample (Sample 402) exhibited the highest concentrations; however, results are comparable between sediment sample locations. No background sediment sample was collected. Analytical results for the soil screening samples, sediment samples and surface soil samples are shown in Table 1.



Five groundwater samples were collected (Samples 201, 202, 203, 204 and 206) and analyzed for volatiles, semivolatiles, cyanide and total metals. Groundwater sample analysis showed 65 ug/L acenaphthalene, 25 ug/L fluorene, 46 ug/L phenanthrene, 93 ug/L benzene and 1600 ug/L cyanide in Well 204. Well 203 sample analysis did not show any contamination except for 590 ug/L cyanide. Both cyanide results are "J" coded, the value is reported but not valid under approved QC procedures. Well 206 (background) did not show any contamination above detection limits.

Arsenic, barium, copper, chromium, nickel, selenium, vanadium, and zinc were not detected in four surface water samples (Samples 301, 302, 303 and 304), except as indicated. Surface water sample analysis showed lead levels at 7.0 ug/L for 301, 7.2 ug/L for 301D, 9.7 ug/L for 302, <24 ug/L for 303, 18 ug/L for 304, and 15 ug/L for 304D. Sample location 303 also showed barium at 280 ug/L, vanadium at 62 ug/L, zinc at <89 ug/L and an invalid selenium result of 11 ug/L. Sample location 304 and 304D showed chromium at 14 ug/L and 12 ug/L, respectively. Sample location 304 also had a result of 54 ug/L for zinc. Sample 304 was collected from the Illinois-American Water Company surface intake located across the Mississippi River from the site. Sample locations are shown in Figure 6. Surface water samples were analyzed for total petroleum hydrocarbons, volatiles, semivolatiles, cyanide and total metals. None of the samples collected during the Laclede Coal Gas SSI were analyzed for PCBs.

In the E&E/FIT SSI report, it is stated that a mixed source is present since BETX compounds "are not considered abundant in coal tar." The PAHs and cyanide were attributed to the former coal gas operations. It was also stated that some PAH contamination may be attributed to the PFT-Apex Facility, which stores oil and asphalt.

- On July 8, 1993 St. Louis MSD personnel discovered oil seeping into the Brooklyn Street storm water pump station, located at the eastern end of Brooklyn Street and approximately 400 feet north of the Mound Street PCB Site. This pump station is only operational during heavy precipitation or if the Mississippi River level is above flood stage. In July, 1993, the Mississippi River was above flood stage. A waste oil sample from the pump station wet well was collected and analyzed for PCBs by the MSD. A PCB concentration of 47 mg/L was detected. The possible source was identified as an underground storage tank (UST) on the adjacent property. On August 9, 1993, waste oil samples from three manholes located along the flood wall were collected and analyzed for PCBs by the MSD. These three manholes are part of the underdrain system for the flood wall and are not part of the storm sewer system. The concentrations of PCBs were 25.4 mg/L in Manhole F-GA1

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(#12), 11.7 mg/L in Manhole F-GA1 (#13), 36.6 mg/L in Manhole F-GA1 (#14). In the conclusion of the Special Problem Investigation report completed by MSD, it is stated the UST appears to be the source of the oil in the pump station. It is further stated that ground saturation of oil from an old Union Electric facility is another possibility.

A 12,000-gallon UST (10.5 foot diameter by 18.5 feet long) containing petroleum products was discovered during an investigation to identify the potential source of the PCBs in the pump station. The UST was located on Terminal Railroad Association (TRRA) property, southwest of the Brooklyn Street pump station (Figure 7). The TRRA property is located on the north side of Mound Street, directly across from the Mound Street PCB Site. A sample was collected from the UST on July 14, 1993 by MSD. Sample analysis showed PCBs in the UST at 39 mg/L. The existence of the UST was unknown to TRRA prior to notification by the St. Louis Fire Marshall. Sample analysis of the tank contents showed PCBs at less than 10 mg/kg. Analysis of soil samples collected from the UST excavation showed PCBs at less than 0.05 mg/kg. It is estimated that less than 50 gallons of water was in the UST pit after excavation activities; however, no sample of the water was collected. On August 17, 1993 EnTech Engineering, under supervision by GEHM Corporation, conducted an Infrared Thermograph (IR/T) survey of the TRRA Site. No evidence of a leak plume was identified during this study. An anomaly was discovered, approximately 10 foot square, on the Mound Street PCB property. Boreholes were attempted at the location of the anomaly; however, they were abandoned after auger refusal at a depth of 5 feet due to encountering solid rock debris. The foundation or basement of the demolished Mound Street Site buildings could explain the presence of the IR/T anomaly.

A letter from Randel Lewis, Terminal Manager for the Petroleum Fuel and Terminal Facility, to Charles Gay, St. Louis City Fire Inspector, was written in response to a September 8, 1993 telephone conversation. In the letter, Mr. Lewis stated that a leak in a 6-inch pipeline was discovered at the facility. Repairs to the pipeline were made with approximately 2.5 barrels of oil/soil being disposed of. It was further stated that the pipeline was taken out-of-service. The letter does not indicate where the pipeline was located.

- The Missouri Department of Natural Resources (MDNR) submitted a PA report on the Mound Street PCB Site on March 21, 1994. Field activities for the PA occurred on November 11, 1993. No samples were collected during the PA. The conclusions of the PA report indicate that a threat from the groundwater pathway is very unlikely, a release

to the Mississippi River appears likely, an exposure through the soil pathway is low and an exposure through the air pathway is also low.

No further incidences of oil in the Brooklyn Street pump station or manholes along the flood wall have occurred since the 1993 spill.

### **Potential Sources**

The contaminants of concern at the Mound Street PCB Site originate from at least two separate sources; 1) coal gas operations, and 2) electrical power generation and transmission operations. The former is a source for coal tar wastes and spent oxides, while the latter is a potential source for PCBs. Coal tar wastes include polynuclear aromatic hydrocarbons (PAHs) and phenolic compounds resulting from combustion processes, and spent iron oxides resulting from gas purification processes. Benzene, ethylbenzene, toluene and xylene are possible constituents of coal tar wastes. Iron oxides may contain sulphur, cyanide and small quantities of coal tar. PCBs are found in transformer and hydraulic oil. It is estimated that approximately 223,680,000 gallons of coal tar wastes may be buried on the former Laclede Coal Gas Site, which includes the Mound Street PCB Site.

### **Site Investigation Scoring**

An overall score of 50.1 was calculated for this SSI assignment. This is based on a groundwater pathway score of 3.33, a surface water pathway score of 100, and a soil exposure pathway score of 3.38. The air exposure pathway score was not evaluated, and was reported as 0. The details of each pathway are discussed in the following sections.

### **Groundwater Pathway**

The Mound Street PCB Site is located on a "narrow strip of alluvium" between the Mississippi River and limestone bedrock located in the area. Fill material, estimated at 15 to 18 feet thick, overlays the alluvium at the site. Stratified river alluvium consists of silt, clay, and silty clay which becomes coarser with depth and includes gravel lenses. No confining layer is known to exist between the alluvium and bedrock. Also, no aquifer discontinuity exists within the 4-mile target distance limit. The bedrock consists of upper Mississippian limestone formations. The depth to bedrock is estimated to be from 20 to 30 feet. The depth to groundwater is approximately two feet above the Mississippi River and is estimated at 20 feet. Groundwater movement is toward the river, to the east and southeast of the site. The groundwater depth was measured at 25 feet below

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the ground surface during the field activities for this SSI. Sinkholes and caves are found in the Mississippian bedrock within the target area. The karst aquifer probably does not directly underlie the site and probably does not affect contaminant transport from the site.

The results of the Sverdrup field sampling indicate the presence of benzene and PAHs in the groundwater. Benzene was detected in the North Well at 38  $\mu\text{g/L}$  (Figure 8a). However, benzene was not detected above the 6  $\mu\text{g/L}$  detection limit in the South Well. PAHs detected in the North Well sample were acenaphthene at 86  $\mu\text{g/L}$ , fluorene at 29  $\mu\text{g/L}$ , phenanthrene at 26  $\mu\text{g/L}$ , and bis(ethylhexyl) phthalate at 32  $\mu\text{g/L}$ . All analyzed compounds were nondetect in the South Well. PCBs were below detection limits in both the North and South Well. Groundwater data appears consistent with historical data obtained from the site.

Groundwater within a 4-mile radius of the site is not used for drinking water. Irrigation of agricultural crops is possibly conducted via groundwater. The site is not located within a wellhead protection area. The Mississippi River is located approximately 100 feet east of the sampled monitoring wells and the groundwater level fluctuates with the river level. Therefore, the groundwater-to-surface water migration route is a potential exposure pathway.

The groundwater pathway score is 3.33. This score was calculated based on the observed release of benzene, cyanide and PAHs in the aquifer. However, there are no drinking water targets within the target distance limit.

### **Surface Water Pathway**

A score of 100 was calculated for this pathway. This score is based on the observed release of cyanide and PAHs to the Mississippi River. The Mound Street PCB Site is located approximately 300 feet west of the Mississippi River and is protected from flooding by a concrete flood wall located approximately 200 feet east of the site. Average streamflow on the Mississippi River is greater than 100,000 cubic feet per second. The concrete flood wall was built to withstand the 500-year flood, therefore, the site is outside the 500-year flood plain of the Mississippi River. Surface water runoff from the site is collected in the storm sewer system, which is connected to the sanitary sewer system. The sanitary sewer system flows to the Bissle Point Treatment Plant, approximately 2.5 miles upstream of the site. No channels or ditches were observed crossing the site property.

During the site reconnaissance conducted by E&E/FIT on November 20, 1990, seepage was observed from the foundation and pipe system of an abandoned pump house, formerly part of the Mound Street

Power Plant. Since the pump house was on the river side of the flood wall, direct observation of a release to the surface water pathway was made. However, the source of the seepage was not known or determined, no sample was collected, and no description of the material seeping into the river was made. It is assumed to be an oil substance or mixture; however, there is no evidence of the oil being contaminated with PCBs.

### **Subsurface Soil Migration**

Subsurface soil sampling was conducted to identify the potential migration of contaminants in the subsurface to the Mississippi River. The soil sampling results for Sample DC1CY-102 indicate the presence of PAHs in the subsurface (Figure 8b). Naphthalene was detected in Sample DC1CY-102 at 150 ug/kg, fluoranthene at 570 ug/kg, pyrene at 520 ug/kg, and carbon disulfide at 22 ug/kg. These results are less than the background levels identified during the 1991 SSI of the Laclede Coal Gas Site. Sample analysis showed levels of volatiles, semivolatiles and PCBs below the detection limits for the other sample locations (DC1CY-100, 100D, 103, and 104). Subsurface soil samples were collected in 1991 during an investigation of the Laclede Coal Gas Site. Volatiles, PAHs and cyanide were detected. Samples were not analyzed for PCBs. Refer to Table 1 and Figures 6a and 6b for sample data and locations.

### **Groundwater-to-Surface Water Migration**

The results of this sampling indicate the presence of benzene and PAHs in the groundwater in the North Well. PCBs were not detected in either the North or South Well. Refer to the discussion under Groundwater Pathway.

### **Surface Water**

Samples collected during the 1991 investigation of the Laclede Coal Gas Site showed low concentrations of metals in the Mississippi River. Volatiles were not detected; however, PAHs, cyanide and metals were detected in the sediments. Samples were not analyzed for PCBs. Refer to Table 1 and Figures 6a and 6b for sample data and locations.

The Illinois American Water Company has a surface water intake at East St. Louis, located on the east side of the Mississippi River, less than one-tenth of a mile downstream from the subject site. The Illinois-American Water Company serves 19 communities with a combined service population of approximately 300,000 persons. The East St. Louis intake water is blended with an intake on Chouteau Island, approximately 10 miles upstream of the site. The East St. Louis intake provides

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approximately 60 percent of the required production. The likelihood of contaminants originating from the site entering the Illinois-American surface water intake is low for the following reasons:

The surface water intake is located across the Mississippi River from the site and slightly downstream. The intake is almost directly across the river from the site.

The Mississippi River has a flow of at least 100,000 cubic feet per second providing a dilution of 0.00001, per the Site Inspection Worksheets.

Contaminants would enter the river along the western edge of the river and progress outward in a plume. Such a plume would unlikely reach the eastern bank in such a short distance, rather, contaminants would move directly south via the channel of the river.

No other surface water intakes are located within the 15-mile downstream target limit, except for industrial water usage intakes. The 15-mile downstream distance limit is shown in Figure 9.

The Mississippi River is a primary target with the following use designations; irrigation, livestock and wildlife watering, protection of warm water aquatic life and human health-fish consumption, boating and canoeing, drinking water supply, and industrial uses. It is also a primary fishery, with commercial and sport fishing occurring along the river. The commercial fish harvest by licensed fishermen in 1992 was reportedly 7,768 pounds for St. Louis County.

National Wetland Inventory Maps of the site area and 15 miles downstream along the Mississippi River were reviewed by MDNR during the completion of the PA. Approximately 0.7 miles of palustrine wetlands occur on the Illinois side of the river. No wetlands are reported on the Missouri side of the river.

State and federally listed and proposed threatened and endangered species which may occur in the vicinity of the site include the Pallid Sturgeon and Sicklefin Chub, big river fish that may have a wide range of occurrence in the Mississippi River.

The Jefferson National Expansion Memorial, a 90-acre park with 2.7 million visitor per year, is located approximately 1 mile downstream of the site. The Jefferson Barracks Park and National Cemetery are located approximately 15 miles downstream from the site.

### **Soil Exposure Pathway**

A score of 3.38 was calculated for this pathway. This score is based on the observed release of cyanide and PAHs to the shallow soils at the site. Soil samples were collected in areas assumed to be impacted by industrial activities. Background levels were determined based on the 1991 SSI of the Laclede Coal Gas Site.

Surface soil samples were collected in 1991 during an investigation of the Laclede Coal Gas Site. Volatiles, PAHs and cyanide were detected. Samples were not analyzed for PCBs. Refer to Table 1 and Figures 6a and 6b for sample data and locations.

Health based screening concentrations for soils correspond to a  $10^{-6}$  individual cancer risk or a noncancer exposure level corresponding to a reference dose (RfD) under specific exposure assumptions. Based on the Laclede Coal Gas SSI sampling results, the cancer risk screen concentrations for benzo(a)pyrene (0.088 mg/kg), benzo(b)fluoranthene (0.88 mg/kg), benzo(a)anthracene (0.88 mg/kg), and ideno(1,2,3-cd)pyrene (0.88 mg/kg) have been exceeded in soil sample DSX44-109. A cancer risk screen concentration for pyrene, cyanide, fluoranthene, acenaphthene, anthracene, and fluoranthene has not been assigned. The RfD for pyrene (2,300 mg/kg) was not exceeded in soil sample DSX44-102; for cyanide (1,600 mg/kg), fluorene (3,100 mg/kg), and acenaphthene (4,700 mg/kg) was not exceeded in soil sample DSX44-108; and for anthracene (23,000 mg/kg) and fluoranthene (3,100 mg/kg) in soil sample DSX44-109. The RfD for benzene (22 mg/kg), toluene (16,000 mg/kg), and xylene (160,000 mg/kg) was not exceeded in any soil sampled. A cancer risk screen concentration and benchmark RfD for naphthalene, 2-methylnaphthalene, acenaphthylene, and phenanthrene have not been determined.

There are no residences on the site and the nearest residence is over one-quarter mile from the site. The nearest school is over one-half mile from the site. The surrounding area is commercial/industrial, with PFT-Apex Oil and TRRA being the closest facilities. Workers from each facility are in the vicinity of the site daily. However, they would not normally be physically on the Mound Street PCB Site, since it is a vacant lot and outside of their normal work areas. Population within a 1-mile radius of the site is estimated at 3,755 persons on the Missouri side only. The population within a 4-mile radius of the site is approximately 207,100 persons.

### **Air Pathway**

The air exposure pathway was not evaluated. Air sampling was not conducted as part of this SSI. No air samples have been previously collected for this site.

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### **Recommendations**

The site scoring was prepared based on the available information, and included several assumptions related to the surface water pathway. This score was obtained from an observed release to the groundwater, surface water and soil. The groundwater-to-surface water migration route was considered the major pathway of concern. The source of groundwater, surface water and soil contamination is attributed to the former coal-gas operations on the site and potentially to the adjacent PFT-Apex Oil Facility.

For the Mound Street PCB Site, No Further Remedial Action Planned (NFRAP) is recommended. This is based on information collected during current and previous activities associated with the Mound Street PCB Site. However, additional investigation may be required to delineate the extent of contamination attributed to the former coal-gas operations on the site and potentially to the adjacent PFT-Apex Oil Facility. Information should include surface water and sediment analyses along the Mississippi River and soil analyses south of the site to identify contamination migration off-site.

If you have any questions concerning this site, please contact us at (913) 663-2108.

Sincerely,

SVERDRUP CORPORATION, Inc.

A handwritten signature in black ink, reading "Michael W. McCurdy". The signature is written in a cursive, flowing style.

Michael W. McCurdy, CHMM  
Project Manager

Enclosures

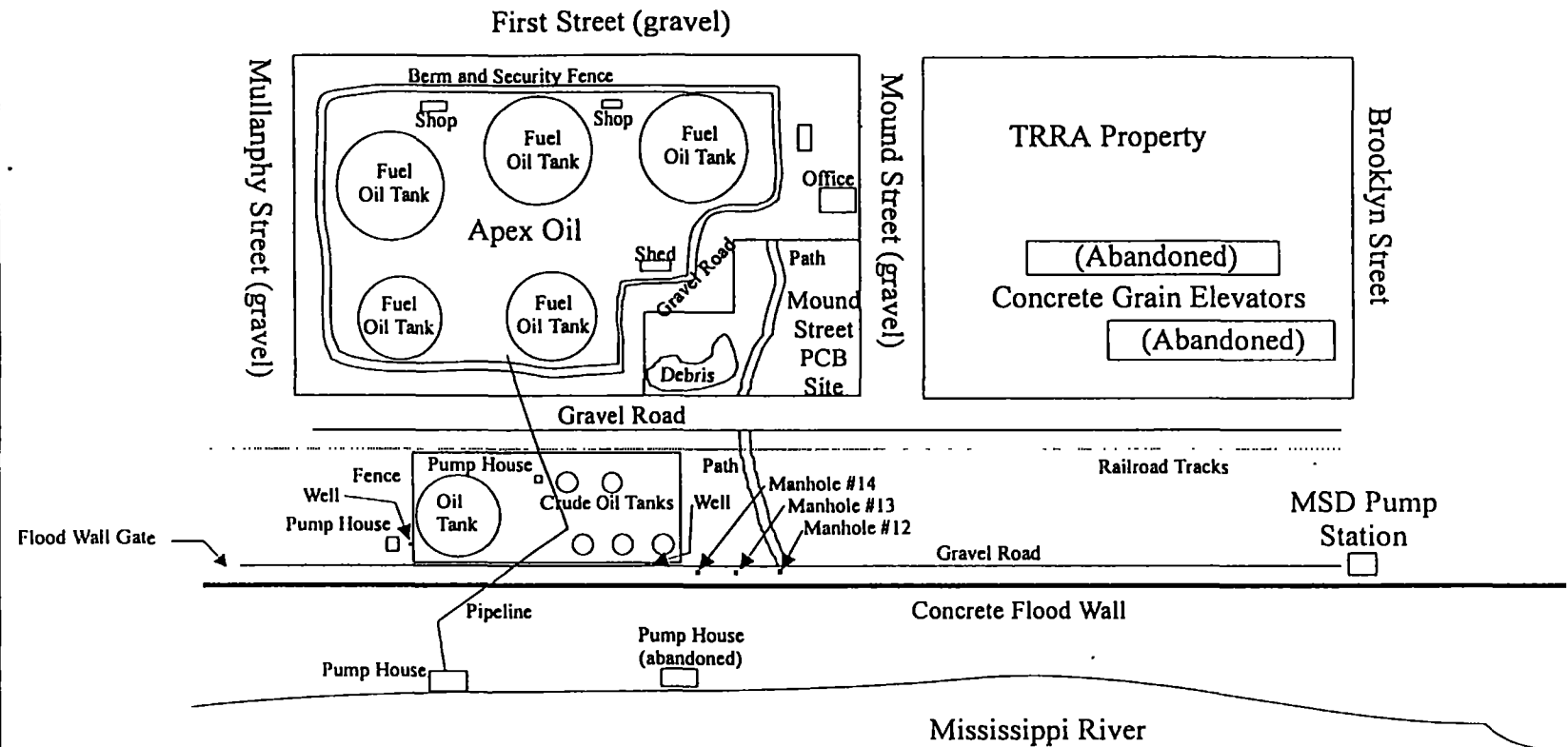
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File





Source: U.S. Geological Survey (USGS), 1954. Granite City, Illinois (photorevised 1974), 7.5 Minute Series Topographic Map.

Project No.: 010865-370303	Mound Street PCB Site St. Louis, Missouri  <b>SVERDRUP</b>	Site Location Map	Figure No.: 1  11/95
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Scale (Approx.)



Sources: E&E/FIT 1991. SSI Laclede Coal Gas Site, St. Louis, Missouri.  
MDNR 1994. PA Mound Street PCB Site.  
GEIIM 1993. Activities Report, TRRA of St. Louis, First and Mound Streets Site, MDNR Spill Report #07143-KB-1331.

Project No.:  
010865-370303

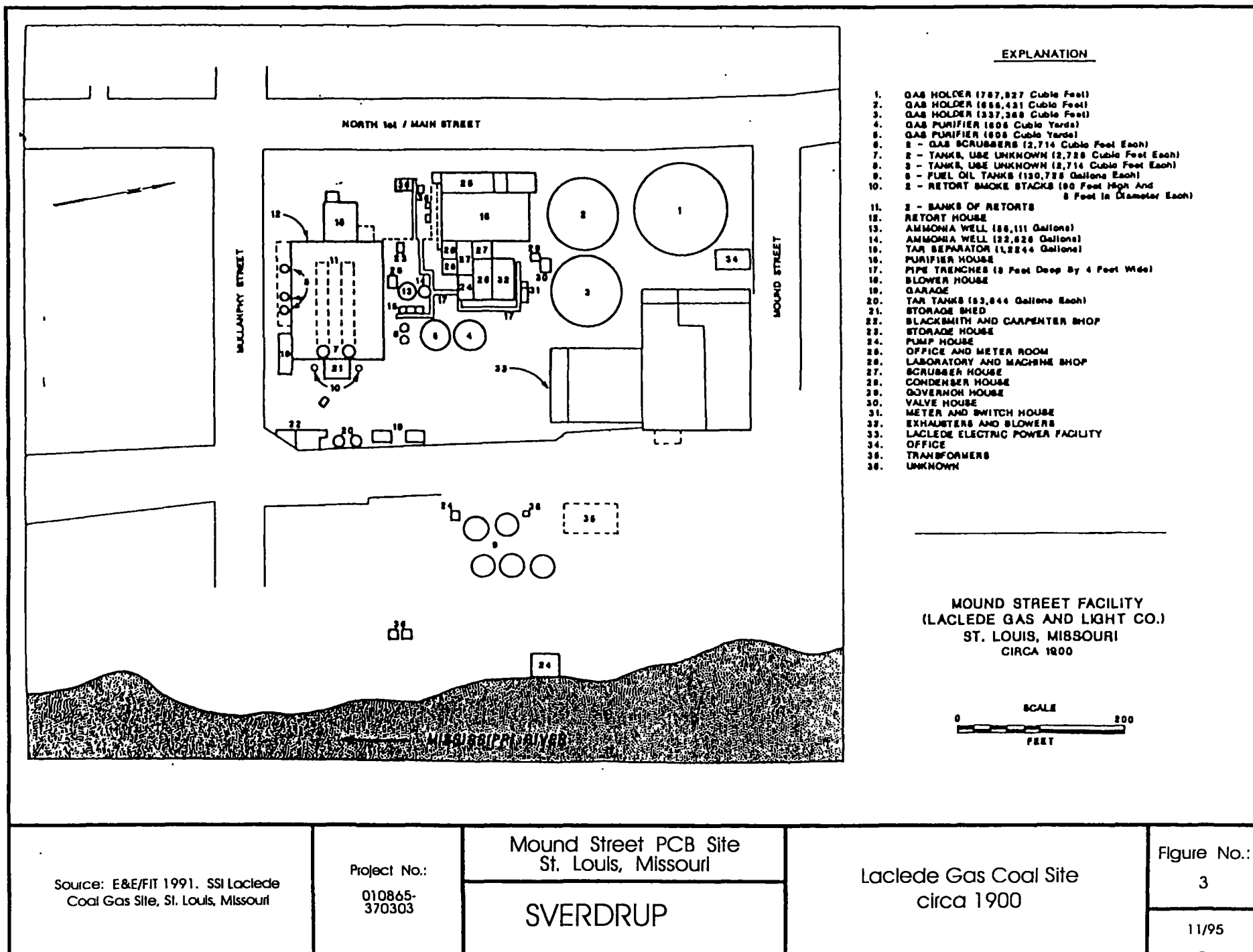
Mound Street PCB Site  
St. Louis, Missouri

SVERDRUP

Site Map

Figure No.:  
2

11/95



Source: E&E/FIT 1991. SSI Laclede  
Coal Gas Site, St. Louis, Missouri

Project No.:  
010865-  
370303

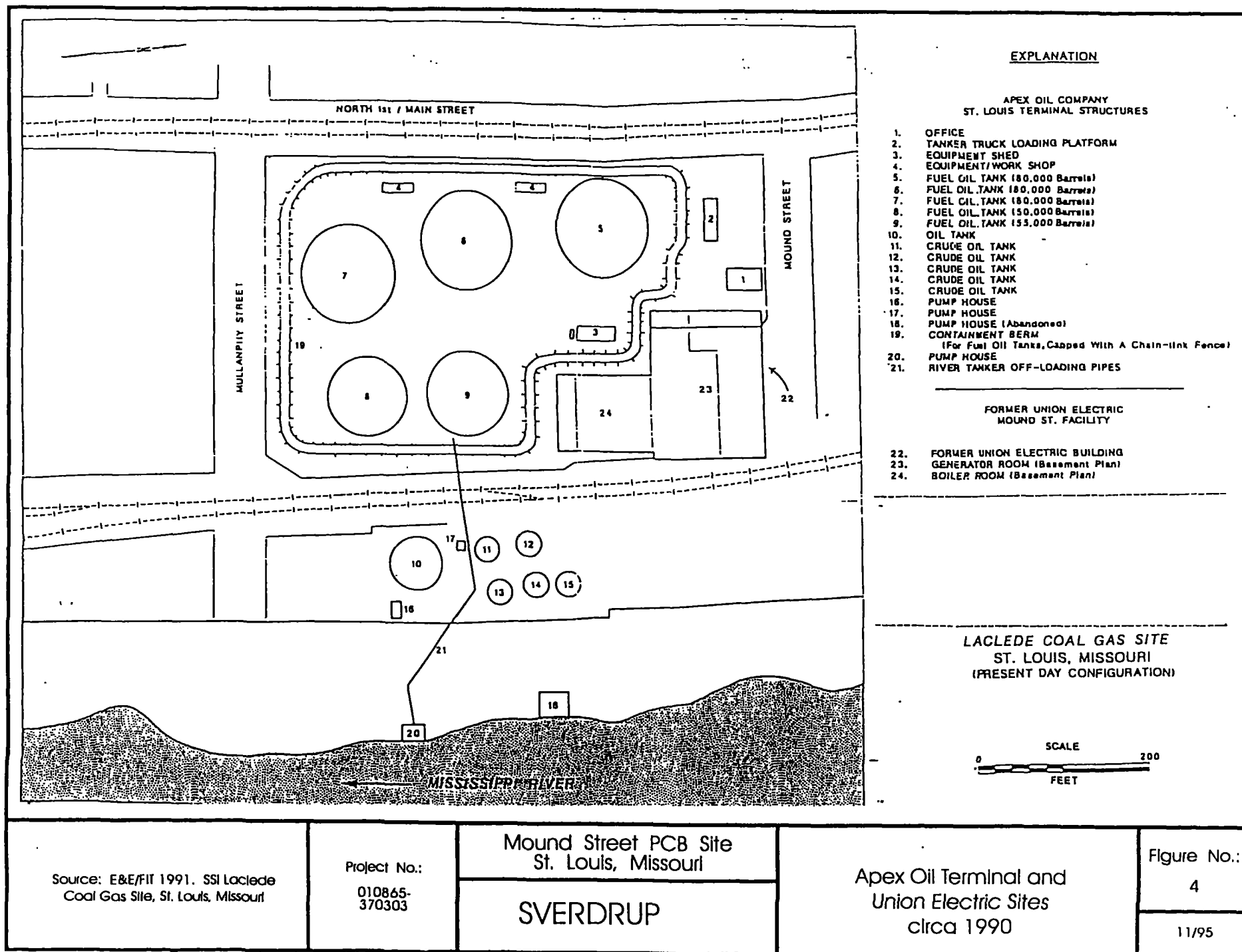
Mound Street PCB Site  
St. Louis, Missouri

SVERDRUP

Laclede Gas Coal Site  
circa 1900

Figure No.:  
3

11/95



# EXPLANATION

## APEX OIL COMPANY ST. LOUIS TERMINAL STRUCTURES

1. OFFICE
2. TANKER TRUCK LOADING PLATFORM
3. EQUIPMENT SHED
4. ENCLOSURE DRAIN PIPE
5. FUEL OIL TANK (180,000 Barrels)
6. FUEL OIL TANK (180,000 Barrels)
7. FUEL OIL TANK (180,000 Barrels)
8. FUEL OIL TANK (180,000 Barrels)
9. FUEL OIL TANK (180,000 Barrels)
10. OIL TANK
11. CRUDE OIL TANK
12. CRUDE OIL TANK
13. CRUDE OIL TANK
14. CRUDE OIL TANK
15. CRUDE OIL TANK
16. PUMP HOUSE
17. PUMP HOUSE
18. PUMP HOUSE (Abandoned)
19. CONTAINMENT BERM  
(For Fuel Oil Tanks, Capped With A Chain-link Fence)
20. PUMP HOUSE
21. RIVER TANKER OFF-LOADING PIPES

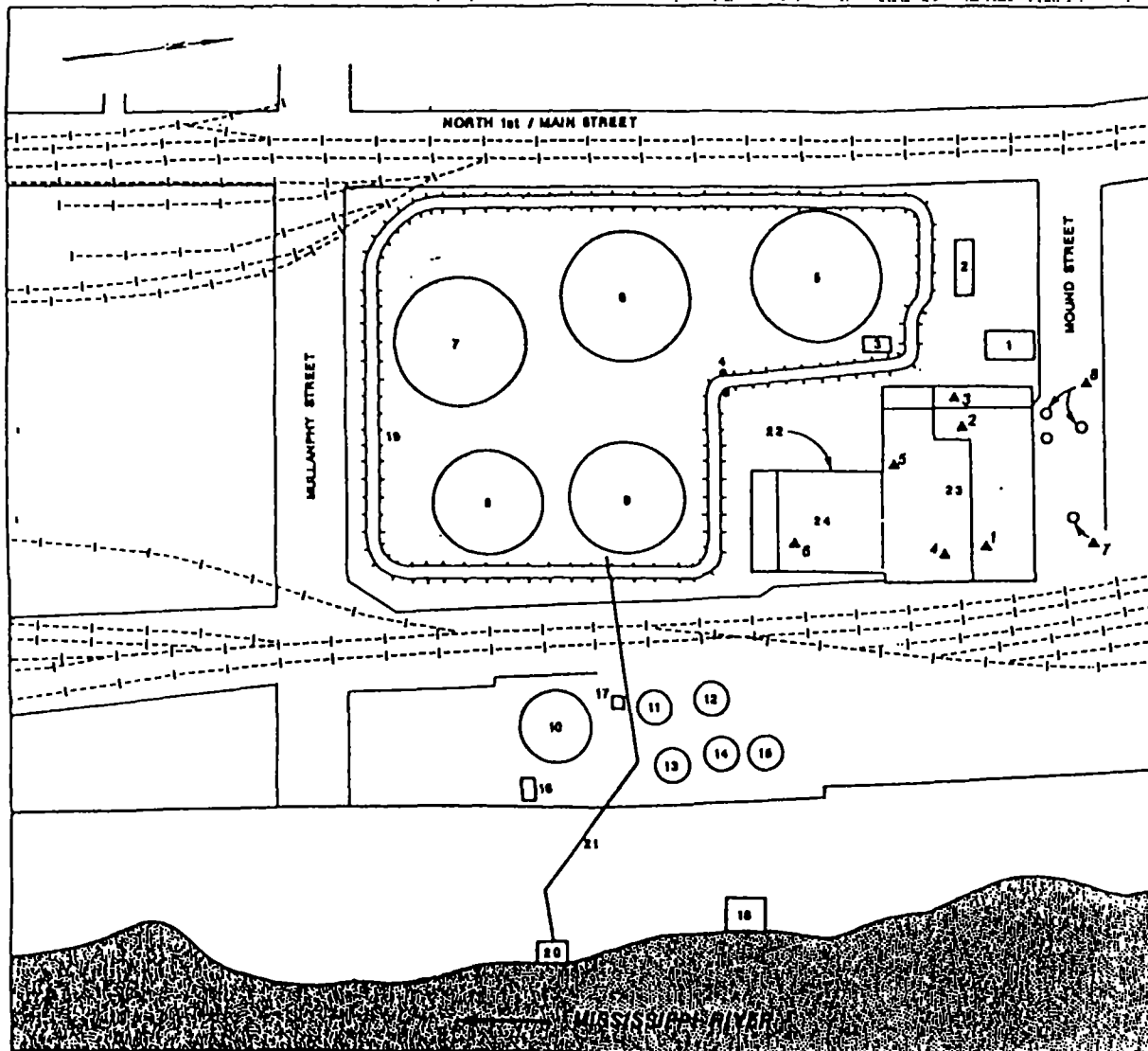
## FORMER UNION ELECTRIC MOUND ST. FACILITY (Currently Owned By Mound M. Corp.)

22. FORMER UNION ELECTRIC BUILDING
23. GENERATOR ROOM (Basement Plan)
24. BOILER ROOM (Basement Plan)

- O STORM SEWER LID  
▲<sup>2</sup> SAMPLE LOCATION AND IDENTIFICATION

## MOUND STREET FACILITY ST. LOUIS, MISSOURI (PRESENT DAY CONFIGURATION)

FIGURE 2-2



Source: E&E/FIT 1988. PA Mound Street  
Power Plant Site, St. Louis, Missouri

Project No.:  
010865-  
370303

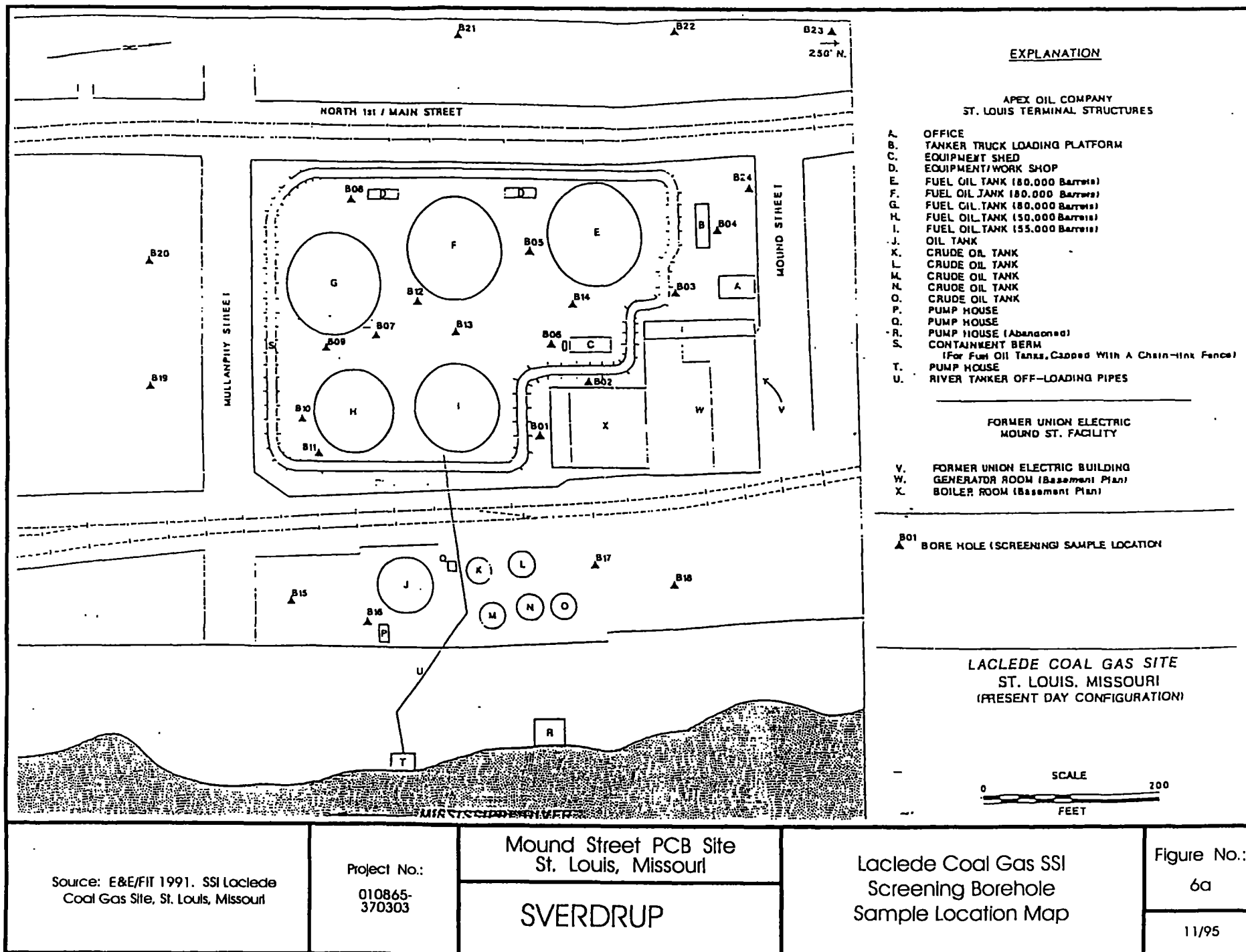
Mound Street PCB Site  
St. Louis, Missouri

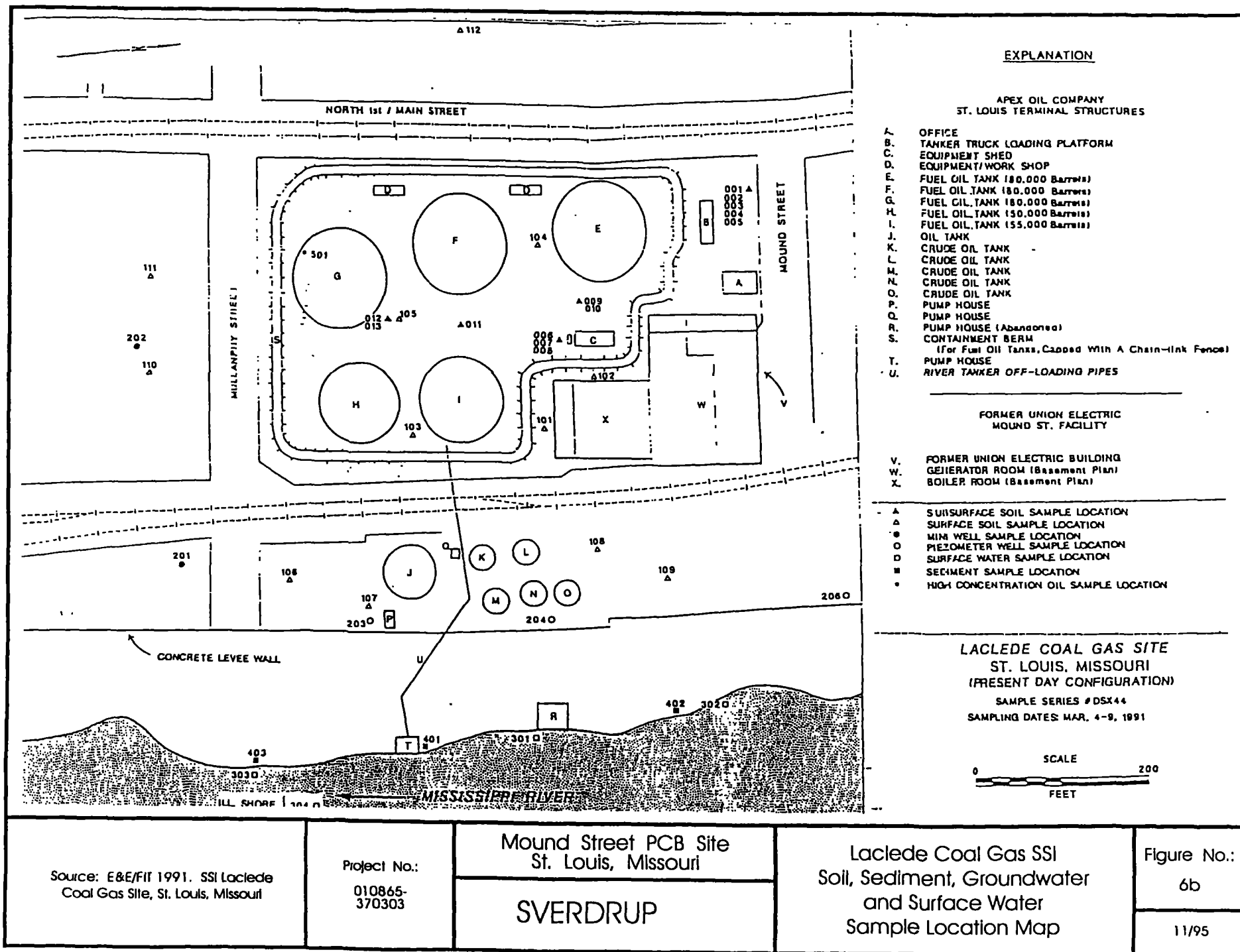
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Mound Street Power Plant  
PA Sample Location Map

Figure No.:  
5

11/95





**Table 1**  
**Sample Analysis Results**  
**1991 Laclede Coal Gas Site SSI**  
**St. Louis, Missouri**

Sample No. (Refer to Figure 6a)	Benzene (ug/kg)	Toluene (ug/kg)	Xylene (ug/kg)	Fluor anthene (ug/kg)	Pyrene (ug/kg)	Benzo(k) fluor anthene (ug/kg)	Benzo(a) pyrene (ug/kg)	Comments
Field Analytical Support Program -- Mobile Laboratory Screening Results								
B01 (borehole soil sample)	1,200	380	1,700	16,000	3,700	NT <sup>A</sup>	NT	0-5 ft sample depth, same location as surface soil sample 101
B01 (borehole soil sample)	9,100	1,200	19,000	27,000	12,000	NT	NT	5-10 ft sample depth, same location as surface soil sample 101
B01 (borehole soil sample)	18,000	710	65,000	56,000	40,000	NT	NT	10-15 ft sample depth, same location as surface soil sample 101
B01 (borehole soil sample)	17,000	770	79,000	13,000	5,200	NT	NT	15-18 ft sample depth, same location as surface soil sample 101
B02 (borehole soil sample)	6,300	43,000	240,000	8,000	<500	<500	<500	0-5 ft sample depth, same location as surface soil sample 102
B02 (borehole soil sample)	6,100	1,700	57,000	15,000	ND <sup>B</sup>	ND	ND	5-10 ft sample depth, same location as surface soil sample 102
B02 (borehole soil sample)	69,000	110,000	570,000	ND	ND	ND	ND	10-15 ft sample depth, same location as surface soil sample 102
B02 (borehole soil sample)	7,500	650	33,000	ND	ND	ND	ND	15-21 ft sample depth, same location as surface soil sample 102
B03 (borehole soil sample)	1,040	22,000	22,000	<500	<500	<500	<500	0-5 ft sample depth



**Table 1**  
**Sample Analysis Results**  
**1991 Laclede Coal Gas Site SSI**  
**St. Louis, Missouri**  
**(continued)**

Sample No.	Benzene (ug/kg)	Toluene (ug/kg)	Xylene (ug/kg)	Fluor anthene (ug/kg)	Pyrene (ug/kg)	Benzo(k) fluor anthene (ug/kg)	Benzo(a) pyrene (ug/kg)	Comments
Field Analytical Support Program -- Mobile Laboratory Screening Results								
B03 (borehole soil sample)	310	11,000	53,000	ND	ND	ND	ND	5-10 ft sample depth
B03 (borehole soil sample)	1,800	6,300	3,500	ND	ND	ND	ND	10-15 ft sample depth
B03 (borehole soil sample)	860	9,000	5,300	ND	ND	ND	ND	15-21 ft sample depth
B17 (borehole soil sample)	540	<250	21000	<500	<500	<500	<500	0-5 ft sample depth, ND for 5-33 ft sample depth except for 2,700 ug/kg m-xylene at 5 -10 ft, same location as surface soil sample 108
B18 (borehole soil sample)	<250	<250	<250	<500	<500	<500	<500	0-33 ft sample depth, same location as surface soil sample 109
B23 (borehole soil sample)	<250	<250	<250	<500	<500	<500	<500	0-5 ft sample depth, background soil sample
401 (sediment sample)	<250	<250	<250	NT	NT	NT	NT	Sediment sample
402 (sediment sample)	<250	<250	1,600	<500	<500	<500	<500	Sediment sample
403 (sediment sample)	<250	<250	420	2,600	5,400	4,200	3,800	Sediment sample
301 (surface water sample)	<25	<25	<25	NT	NT	NT	NT	Surface water sample

**Table 1**  
**Sample Analysis Results**  
**1991 Laclede Coal Gas Site SSI**  
**St. Louis, Missouri**  
**(continued)**

Sample No.	Benzene (ug/kg)	Toluene (ug/kg)	Xylene (ug/kg)	Fluor anthene (ug/kg)	Pyrene (ug/kg)	Benzo(k) fluor anthene (ug/kg)	Benzo(a) pyrene (ug/kg)	Comments	
Field Analytical Support Program -- Mobile Laboratory Screening Results									
302 (surface water sample)	<25	<25	<25	NT	NT	NT	NT	Surface water sample	
303 (surface water sample)	<25	<25	<25	NT	NT	NT	NT	Surface water sample	
Sample No. (Refer to Figure 6b)	Pyrene (mg/kg)	Benzo(k) fluor anthene (mg/kg)	Benzo(a) pyrene (mg/kg)	Benzo(b) fluor anthene (mg/kg)	Benzo(a) anthracene (mg/kg)	Chrysene (mg/kg)	Total PAHs (mg/kg)	Cyanide (mg/kg)	Comments
Surface Soil Samples -- CLP Analysis									
101 (B01)	ND <sup>B</sup>	ND	ND	ND	ND	ND	ND	33	0-2 ft sample depth
102 (B02)	21	ND	ND	ND	ND	ND	21	ND	0-2 ft sample depth
107 (B16)	ND	ND	ND	ND	ND	ND	73 <sup>E</sup>	14	0-2 ft sample depth
108 (B17)	ND	ND	ND	ND	ND	ND	9.8 <sup>F</sup>	98	0-2 ft sample depth
109 (B18)	6.7	3.4	4.2	4.9	4.5	4.3	40 <sup>G</sup>	35	0-2 ft sample depth
112 (B21, background sample)	1.4	0.68	0.7	0.61	0.79	0.85	6.8 <sup>H</sup>	<6.7	0-2 ft sample depth, background soil sample

**Table 1**  
**Sample Analysis Results**  
**1991 Laclede Coal Gas Site SSI**  
**St. Louis, Missouri**  
**(continued)**

Sample No. (Refer to Figure 6b)	Pyrene (ug/kg)	Benzo(k) fluor anthene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(a) anthracene (ug/kg)	Benzo(ghi) ) perylene (ug/kg)	Phen anthene (ug/kg)	Fluor anthene (ug/kg)	Di-n-octyl phthalate (ug/kg)	Cyanide (ug/kg)	Total Hydro carbons (ug/kg)
<b>Sediment Samples -- CLP Analysis</b>										
401	ND/960 <sup>C</sup>	ND/ND <sup>C</sup>	ND/430 <sup>C</sup>	ND/460 <sup>C</sup>	ND/ND <sup>C</sup>	ND/ND <sup>C</sup>	ND/750 <sup>C</sup>	ND/470 <sup>C</sup>	ND/ND <sup>C</sup>	3,100/ <3,100 <sup>C</sup>
402	8,000	2,900	2,600	3,500	3,500	2,900	5,000	3,900	1,600	8,200
403	6,400J <sup>D</sup>	3,100	5,600	4,200	4,100	4,400	5,100	4,900	ND	4,900
	Arsenic (mg/kg)	Barium (mg/kg)	Copper (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)	Lead (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)	
401	3.7/4.0 <sup>C</sup>	140/140 <sup>C</sup>	9.1/8.2 <sup>C</sup>	8.7/9.0 <sup>C</sup>	10/11 <sup>C</sup>	30J/13J <sup>C,D</sup>	ND/ND <sup>C</sup>	15/17 <sup>C</sup>	35J/36J <sup>C,D</sup>	
402	8.4	160	26	16	18	36J <sup>D</sup>	2.0J <sup>D</sup>	27	77J <sup>D</sup>	
403	7.1	160	23	12	16	31J <sup>D</sup>	ND	25	64J <sup>D</sup>	

A NT = Not Tested.

B ND = Non detected.

C Sample results/duplicate results.

D J = Results reported but are invalid by approved QC procedures.

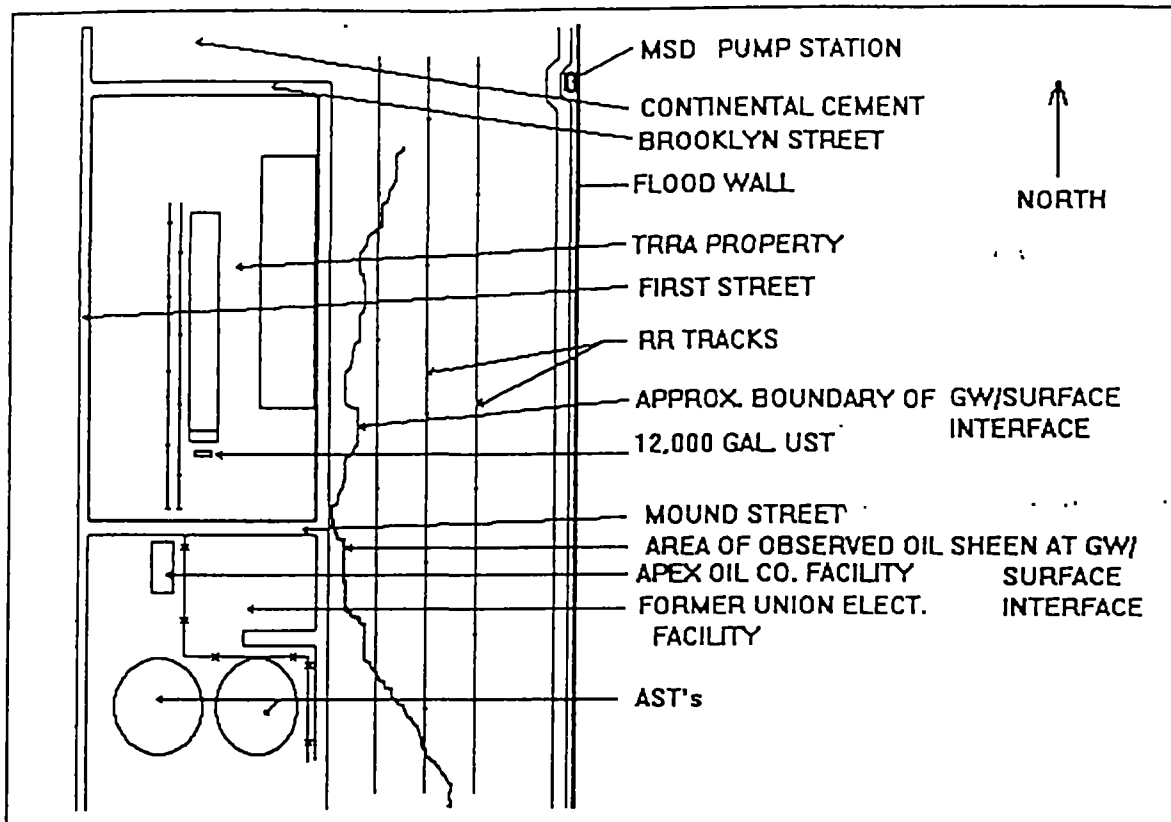
E 60 mg/kg naphthalene and 13 mg/kg 2-methylnaphthalene detected.

F 1.1 mg/kg naphthalene, 2.5 mg/kg 2-methylnaphthalene, 2.4 mg/kg acenaphthylene, 0.69 mg/kg acenaphthene, and 3.1 mg/kg fluorene detected.

G 0.51 mg/kg naphthalene, 0.46 mg/kg acenaphthylene, 2.2 mg/kg phenanthrene, 0.78 mg/kg anthracene, 2.8 mg/kg fluoranthene, 2.7 mg/kg ideno(1,2,3-cd)pyrene, and 2.6 mg/kg dibenzo(g,h,i)perylene detected.

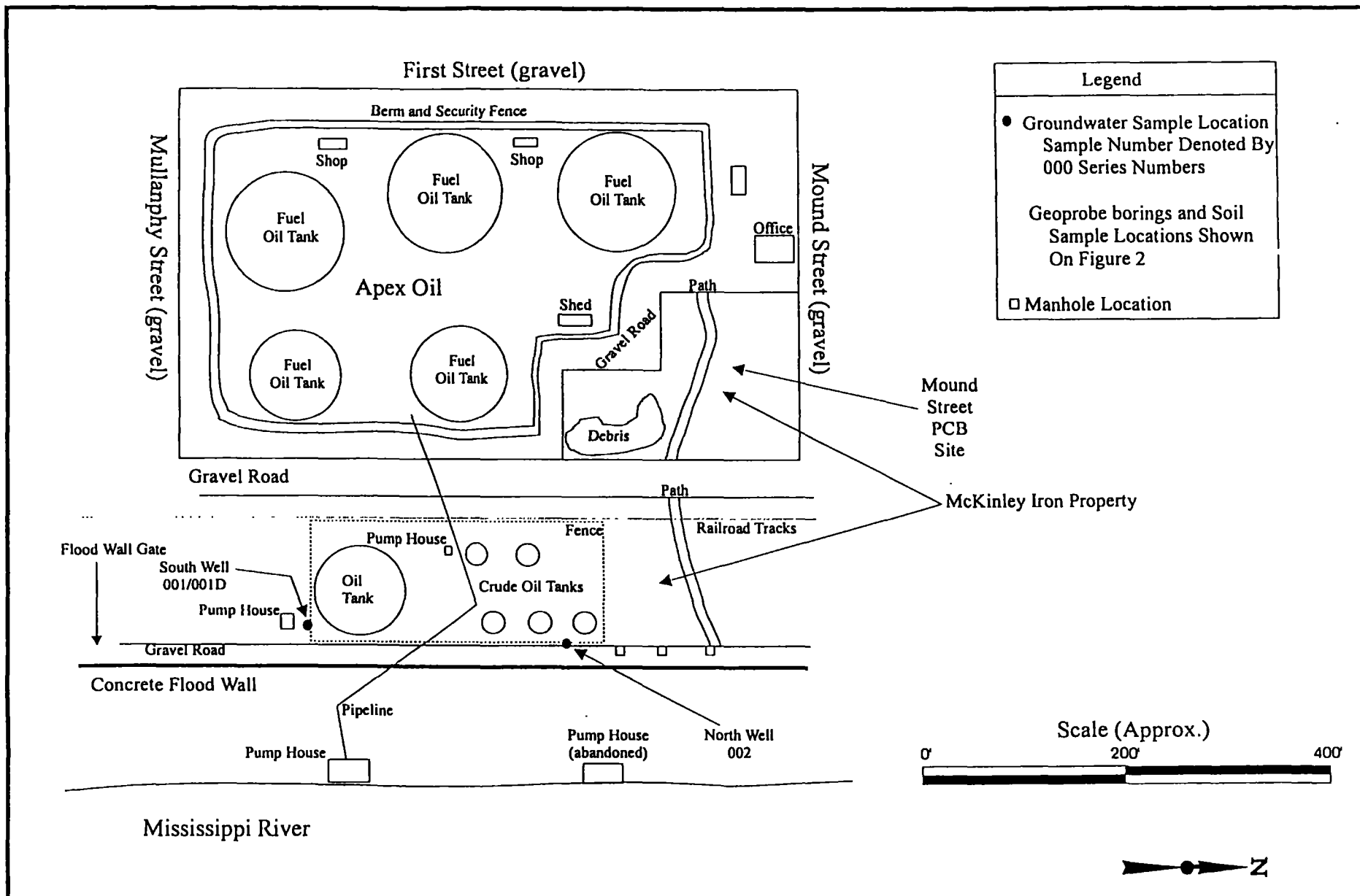
H 0.44 mg/kg phenanthrene, 1.3 mg/kg fluoranthene, and below detection limit of 0.41 mg/kg for remaining PAHs.

Source: E&E/FIT, 1991.



Source: GEHM 1993. Activities Report, TRRA of St. Louis, First and Mound Streets Site, MDNR Spill Report #07143-KB-1331

Project No.: 010865-370303	Mound Street PCB Site St. Louis, Missouri	TRRA UST Location Map	Figure No.: 7
	SVERDRUP		11/95



Sources: E&E/FIT 1991. SSI Laclede  
Coal Gas Site, St. Louis, Missouri.  
MDNR 1994. PA Mound Street PCB Site.

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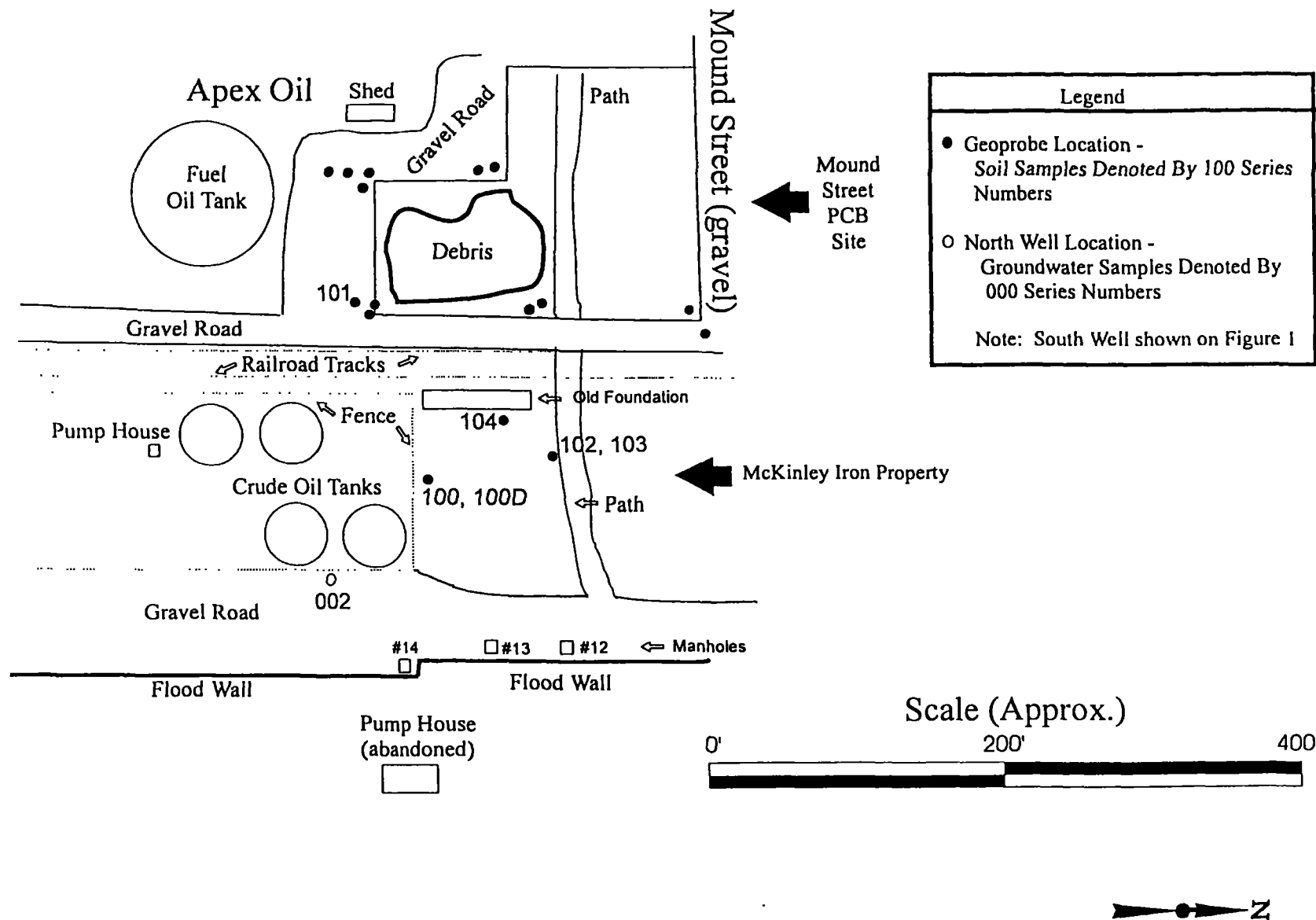
Mound Street PCB Site  
St. Louis, Missouri

**SVERDRUP**

Groundwater Sample  
Location Map

Figure No.:  
8a

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Sources: E&E/FIT 1991. SSI Laclede Coal Gas Site, St. Louis, Missouri. MDNR 1994. PA Mound Street PCB Site.

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Mound Street PCB Site  
St. Louis, Missouri

SVERDRUP

Geoprobe-Soil Sample  
Location Map

Figure No.:  
8b

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